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ABSTRACT

A computer confidence course designed to teach the fundamentals of computer literacy was offered to 19 members of the Las Vegas (Nevada) Senior Center (mean age = 63.9 years). Computer anxiety and computer literacy measures were taken before and after the 12-hour course. The course curriculum included sections on computer knowledge, computer applications, and computer programming. An expected decrease in anxiety did not occur, although there was a significant increase in literacy. The results indicate that older computer users have both a willingness to explore the functions of computers and an ability to use the computers to enhance daily functioning. (Author/KC)

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The Development of Computer Confidence in Seniors

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Abstract

A computer confidence course designed to teach the fundamentals of computer literacy was offered to 19 members of a Senior Center (mean age = 63.9 years). Computer anxiety and computer literacy measures were taken before and after the 12 hour course. The course curriculum included sections on computer knowledge, computer applications, and computer programming. An expected decrease in anxiety did not occur, though there was a significant increase in literacy. The results indicate that older computer users have both a willingness to explore the functions of computers and an ability to use the computers to enhance daily functioning.

The need for a computer literate society is continually becoming more apparent (Elsele, 1980; Luehrmann, 1981; Molnar, 1980; Seidel, Anderson, & Hunter, 1982) and the call for equal opportunities for all people to become computer literate has been made (Winkle & Mathews, 1982).

Opportunities for the elderly to join the ranks of the computer literate are still very rare though new programs designed to meet the special computer education needs of the elderly are being designed and implemented (Bourdelais, 1986). In response to the growing desire by the elderly to join the computer literate, a computer confidence course for seniors designed to teach the fundamentals of computer literacy was developed. Three major areas of computer literacy were presented: knowledge about computers and the people who operate them, the application of computers, and the basics of computer programming.

To assess the effectiveness of the course, both a computer literacy test and a computer anxiety test were given to all participants before and after the course. Increases in literacy were predicted and concomitant decreases in anxiety were expected.

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Method

Subjects

All participants in the computer course and in the control groups were members of a humanities study group at the Las Vegas Senior Citizen Center in Las Vegas, Nevada. Nineteen seniors participated in the program. Fifteen seniors on a waiting list served as the first control group. In addition, 15 members of the humanities study group who had decided not to participate in the computer course served as the second control group.

The mean ages, number of years of education, amount of previous experience, and initial anxiety scores for each of the groups is shown in Table 1. Differences among the groups in age, education, and previous computer experience were assessed by one way analyses of variance (ANOVAs). The groups did not differ significantly on any of the variables.

Table 1

Mean Age, Education, Previous Exposure, and Anxiety Scores for Course Participants and Control Groups

Group	N (females)	Age	Years of Education	Previous Exposure	Computer Anxiety
Course Participants	19 (11)	63.9	13.3	3.1	47.4
Waiting List	12 (7)	67.5	13.5	3.9	41.5
Nonparticipants	13 (8)	67.8	12.3	1.5	92.6

The Course Curriculum

The course consisted of four, three hour sessions over a two week period. Participants met at the computer training lab of the Clark County School District. Each participant was assigned to an IBM personal computer. The course was divided into three major areas - computer knowledge, computer applications, and computer programming.

Computer Knowledge. IBM produced software entitled "IBM introduces IBM" was used to acquaint subjects with some of the capabilities of the computer. Participants were also given a short lecture on the history of computers, followed by a lecture on the flow of control in computer systems, and were introduced to some basic terms. They were then given some information about the different kinds of computer related jobs.

Computer Applications. Participants were exposed to three different computer applications. First, they learned the basics of word processing using "PSF: Write" and were asked to type a letter, print it, and mail it. Participants also received hands-on experience with the "Lotus 1-2-3" spreadsheet by preparing a budget. Finally, students were taught the basics of the PSF data base system and were asked to create a data base to handle recipes.

Computer Programming. The fundamentals of programming in BASIC were introduced using the "IBM introduces IBM" software. Students were also introduced to LOGO. The Turtlegraphics capabilities were employed to teach problem solving, sequential thought, attention to detail, and patience.

The Measures

Computer Anxiety. Computer anxiety was measured during the first and last sessions of the course using the Computer Anxiety Index (Montag, Simonson, & Maurer, 1984). Anxiety scores could range from 26 to 156 with higher scores indicating higher anxiety. Subjects in the two control groups were also given the anxiety measure.

Computer Literacy. The computer literacy test, a modified version of the Standardized Test of Computer Literacy (Montag, Simonson, & Maurer, 1984), was administered during the first and last sessions. Scores could range from 0 to 30 with higher scores indicating higher literacy. Only those questions dealing with

computer knowledge and computer application were used and most of them were modified to reflect topics covered in the course.

Previous Experience. All participants, as well as the control groups, completed a questionnaire about their previous exposure to computers. Scores could range from 0 to 16 with lower scores indicating minimal or no previous experience and higher scores indicating regular access to a computer.

Results

Computer Anxiety. Correlations between age and anxiety, education and anxiety, and previous exposure to computers and anxiety for each of the three groups are shown in Table 2. No significant correlations were found.

Table 2

Pearson Product Moment Correlations for Previous Exposure, Age, Education, and Anxiety for Course Participants and Control Groups

Group	N	Age & Anxiety	Education & Anxiety	Exposure & Anxiety
Course Participants	19	-.10	.44	-.27
Waiting List	12	-.25	-.16	.43
Nonparticipants	13	.54	.15	.01

Mean precourse anxiety scores for the course participants, and the two control groups are shown in Table 1. A one-way ANOVA revealed significant differences in precourse anxiety among the groups ($F(2,38) = 31.4$, $p < .05$). Post hoc analysis using the Tukey test revealed that nonparticipants were significantly more anxious about the prospects of using computers than both course participants or future participants ($HSD_{.05} = 17.7$).

Mean precourse and postcourse anxiety scores for participants are shown in Table 3. A correlated t-test indicated that postcourse anxiety scores were not significantly different from precourse scores ($t(16) = 1.44$, $p > .05$).

Computer Literacy. Mean precourse and postcourse literacy scores are shown in Table 3. A correlated t-test done on overall literacy scores indicated that postcourse literacy scores were significantly higher than precourse literacy scores ($t(16) = 3.45$, $p < .01$).

Table 3

Precourse and Postcourse Anxiety and Literacy Means and Standard Deviations for Course Participants[a]

	Anxiety	Overall Literacy	Computer Knowledge	Computer Applications
Precourse	47.4 (14.6)	13.8 (4.4)	6.2 (2.5)	7.6 (3.1)
Postcourse	44.2 (16.9)	16.3 (4.4)	8.4 (2.4)	7.9 (2.6)

[a] standard deviations in parenthesis.

Literacy scores were broken down into knowledge of computers and applications for computers. Analyses of the separate components of the literacy score indicate that the increased literacy scores were due entirely to an increase in computer knowledge ($t(16) = 3.83$, $p < .05$).

Discussion

After the 12 hour computer confidence course, seniors showed the expected increase in literacy but not the expected decrease in anxiety. Increases in literacy were due, almost entirely, to increases in knowledge about computers, and not to increases in knowledge about computer applications. This finding is surprising in that computer knowledge was taught using a lecture format and computer application was taught using an experiential hands-on approach. Further research on the most appropriate presentation style for a senior population needs to be conducted.

Although literacy scores increased, the expected decrease in anxiety did not occur. The failure to find a decrease may have been due to low precourse anxiety

levels. Course participants reported anxiety levels (mean = 47.4) significantly lower than the norms established for college students (mean = 70.2), professionals (mean = 46.3), and computer users (mean = 51.4). In addition, the participant's anxiety scores were substantially lower than a similar group of seniors who had chosen not to take the course (mean = 92.6).

Future investigations should concentrate on reducing the anxiety levels of those seniors who chose not to take the course. Encouraging course participants to share their experiences with peers in the established social network of the Senior Center may help alleviate some of the anxiety among those who chose not to participate. Making computers available on a regular basis to seniors by setting up computer laboratories at Senior Centers could also help expose nonusers to users and may help reduce their initial anxiety.

To assure computer equity, more opportunities for continued access to computers, and computer courses for seniors need to be developed. The largest barrier to establishing equity lies, not in their reluctance to give computers a chance but, in the lack of available resources. Once instructors are found and equipment is made available, there appears to be an ample supply of seniors who are interested in and capable of discovering how computers could enhance their lives.

References

Bourdelais, F. (1986). Age is not a barrier to computing. In F. A. McGuire (Ed.), Computer technology and the aged: Implications and applications for activity programs (pp. 45-48). New York: Haworth Press.

Eisle, J. E. (1980). A case for universal computer literacy. Journal of Research and Development in Education, 14, 84-89.

Luehrmann, A. (1981). Computer literacy - What should it be? Mathematics Teacher, 74, 682-686.

Molnar, A. R. (1980). The coming of computer literacy: Are we prepared for it? Educational Technology, 39, 26-28.

Montag, M., Simonson, M. R., & Maurer, M. M. (1984). Test Administrator's Manual for the Standardized Test of Computer Literacy and Computer Anxiety Index. Ames, IA: Iowa State University Research Foundation.

Seidel, R. J., Anderson, R. E., & Hunter, B. (Eds.). (1982). Computer literacy: Issues and directions for 1985. Orlando, FL: Academic Press.

Winkle, L. W., & Mathews, W. M. (1982). Computer equity comes of age. Phi Delta Kappan, 63, 314-315.

Authors' Notes

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